Virginia DMHMRSAS

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ACP Formulary *and* Pocket Guide To Psychopharmacology

The Office of Health and Quality Care in the Virginia Department of Mental Health, Mental Retardation and Substance Abuse Services (DMHMRSAS or "Department") is pleased to present the publication of the first Formulary Pocket Guide (FPG) for the AfterCare Pharmacy (ACP). This FPG provides a listing of medications currently available for use through the DMHMRSAS AfterCare Pharmacy. This FPG may not have all medications available on the market, as new medications come to market rapidly, however we believe that what is on the formulary does not limit the quality of care provided to our clients. The FPG is intended to summarize guidelines and provide a reference that includes charts and tables to enable the reader to have quick access to important information on medication use, dosing and cost information. *However, the use of the FPG is not intended to replace sound clinical judgment.*

Cost data have been included in the pocket guide. These figures have been supplied for your information and not meant to be utilized to formulate pharmacotherapeutic recommendations solely based on cost. These facts have been included to contribute to the "informed decision-making process" that supports best practice values and promotes improved outcomes, as an effective formulary should support rational and cost effective drug therapy.

The FPG will be made available on the Virginia DMHMRSAS intranet and any updates will be accessible on this website. Look for additional information in the future.

We are interested in your feedback on the format, use and content of the FPG. Please notify us with your suggestions for improvement, omissions or further inclusion of content areas to this Guide. Please send in your suggestions to the attention of Michele Thomas, Pharm.D., BCPP with the Department's Office of Health and Quality Care. Dr. Thomas can be reached by phone at (804) 786-9489, (804) 786-3908 or by e-mail at mthomas@dmhmrsas.state.va.us.

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TABLE OF CONTENTS

ACP SUMMARY: FORMULARY BY DRUG "THERAPEUTIC" CLASS

GENERIC NAME	RELATIVE COST	BRAND NAME
ALCOHOL DETERRENTS		
disulfiram	$$	ANTABUSE®
ANXIETY		
alprazolam	$	XANAX®
chlordiazepoxide	$	LIBRIUM®
diazepam	$	VALIUM®
hydroxyzine pamoate	$	VISTARIL®
buspirone	$-$$	BUSPAR®
lorazepam	$-$$	ATIVAN®
oxazepam	$$$-$$$$	SERAX®

GENERIC NAME	RELATIVE COST	BRAND NAME
BIPOLAR DISORDERS		
carbamazepine	$	TEGRETAL®
clozapine	$	CLOZARIL®
lithium carbonate	$	LITHIUM CARBONATE®
lithium carbonate ext-rel tabs	$	LITHOBID®
valproic acid	$	DEPAKENE
lamotrigine	$$	LAMOTRIGINE®
divalproex sodium delayed-rel	$-$$	DEPAKOTE®
olanzapine	$$$-$$$$	ZYPREXA®
quetiapine	$$$-$$$$	SEROQUEL®
risperidone	$$$-$$$$	RISPERDAL®
topiramate	$$$-$$$$	TOPAMAX®
INSOMNIA		
hydroxyzine pamoate	$	VISTARIL®
temazepam	$	RESTORIL®

Continued below

GENERIC NAME	RELATIVE COST	BRAND NAME	GENERIC NAME	RELATIVE COST	BRAND NAME
DEPRESSION					
amitriptyline	$	ELAVIL®	fluvoxamine	$$	LUVOZ®
amitriptyline / perphenazine	$	TRIAVIL®	escitalopram	$$$	LEXAPRO™
amoxapine	$	ASENDIN®	mirtazapine	$$$$	REMERON®
bupropion	$	WELLBUTRIN®	bupropion ext-rel	$$$$	WELLBUTRIN® SR
clomipramine	$	ANAFRANIL®	sertraline	$$$$	ZOLOFT®
desipramine	$	NORPRAMIN®	paroxetine	$$$$	PAXIL®
doxepin	$	SINEQUAN®	venlafaxine ext-rel	$$$$	EFFEXOR® XR
fluoxetine	$	PROZAC®			
imipramine HCL	$	TOFRANIL®			
maprotiline	$	LUDIOMIL®			
nortriptyline	$	PAMELOR®			
protryptylline	$	VIVACTIL®			
tranylcypromine	$	PARNATE®			
trazodone	$	DESYREL®			
nefazodone	$$	SERZONE®			

Continued on next page

ACP SUMMARY: FORMULARY BY DRUG "THERAPEUTIC" CLASS

GENERIC NAME	RELATIVE COST	BRAND NAME
PSYCHOSIS		
chlorpromazine	$	THORAZINE®
clozapine	$	CLOZARIL®
fluphenazine decanoate	$	PROLIXIN®
haloperidol	$	HALDOL®
haloperidol decanoate	$	HALDOL DECANOATE®
loxapine	$	LOXITANE®
perphenazine	$	TRILAFON®
thioridazine	$	MELLARIL®
thiothixene	$	NAVANE®
trifluoperazine	$	STELAZINE®
ziprasidone	$$	GEODON®
quetiapine	$-$$$	SEROQUEL®
risperidone	$-$$$	RISPERDAL®
olanzapine	$$-$$$	ZYPREXA®
aripiprazole	$$$-$$$$	ABILIFY®
risperidone long-acting injection	$$$$	RISPERDAL® CONSTA™

Potency Table: Conventional Antipsychotics

High-Potency Conventional	Mid-Potency Conventional	Low-Potency Conventional
Haloperidol	Perphenazine	Chlorpromazine
Fluphenazine	Loxapine	Thioridazine
Trifluoperazine	Molindone	Mesoridazine
Thiothixene		

The following tables on the upcoming pages represent the Virginia DMHMRSAS AfterCare Pharmacy (Va. DMHMRSAS ACP) drug prices, and cost comparisons.

"Repacks" are unit of use quantities repackaged at the ACP. Available quantities are bottles of 30, 60, 90, and 120.

Cost Comparisons are per unit (tab, cap, etc.).

The Cost Guide is differentiated in two ways. First, by color (light green being the lowest cost, red being the highest cost) and by the number of dollar signs within the color scheme. Each dollar sign represents the relative cost of the product within the therapeutic class; the more dollars signs, the more cost, the less dollar signs, the lower the cost within each respective color/class. *Note: costs reflect prices at time of printing & may differ slightly from the exact price due to rounding and/or contract negotiations.*

Color Key Definition and Abbreviations

Green - Lowest cost	(may range from $ - $$$$)
Yellow - "Medium" cost	(may range from $ - $$$$)
Orange - "Moderate" cost	(may range from $ - $$$$)
Red - Highest cost	(may range from $ - $$$$)

Aftercare Pharmacy	ACP
Capsule	CAP
Cost per unit	*unit
Generic Available	G
Manufacturer	Vendor
Milliter (volume)	ML
Stock Bottle; used for cost comparisons	Bulk
Tablet	TAB

VA. DMHMRSAS (ACP) FORMULARY: ANTIANXIETY MEDS

NAME	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
ALPRAZOLAM	ALPRAZOLAM 0.25MG TABLET	ALPHARMA	G	4.83	5.92	7.00	8.08	0.5-4	$$$
ALPRAZOLAM	ALPRAZOLAM 0.5MG TABLET	ALPHARMA	G	5.03	6.32	7.60	8.89		$$$
ALPRAZOLAM	ALPRAZOLAM 1MG TABLET	ALPHARMA	G	5.14	6.53	7.93	9.32		$$$$
AMITRIPTYLINE HCL/PERPHENAZINE	AMITRIP/PERPHEN 10-2 TABLET	MYLAN PHARMACEUTICALS	G	5.43	7.10	8.78	10.46	Based on Amitryp.	$$$$
AMITRIPTYLINE HCL/PERPHENAZINE	AMITRIP/PERPHEN 25-2 TABLET	MYLAN PHARMACEUTICALS	G	5.70	7.66	9.61	11.56		$
AMITRIPTYLINE HCL/PERPHENAZINE	AMITRIP/PERPHEN 25-4 TABLET	MYLAN PHARMACEUTICALS	G	6.16	8.57	10.98	13.39		$$$
BUSPIRONE HCL	BUSPIRONE HCL 5MG TABLET	RANBAXY PHARMACEUTICALS INC	G	5.00	6.26	7.51	8.77	10-40	$$$
BUSPIRONE HCL	BUSPIRONE HCL 10MG TABLET	IVAX PHARMACEUTICALS	G	5.41	7.07	8.73	10.40		$$$$
CHLORDIAZEPOXIDE HCL	CHLORDIAZEPOXIDE 10MG CAP	"WATSON PHARMA, INC."	G	4.91	6.06	7.22	8.38	20-40	$$$
CHLORDIAZEPOXIDE HCL	CHLORDIAZEPOXIDE 25MG CAP	"WATSON PHARMA, INC."	G	5.37	6.98	8.60	10.21		$$$$
CHLORDIAZEPOXIDE HCL	CHLORDIAZEPOXIDE 5MG CAP	"WATSON PHARMA, INC."	G	5.69	7.63	9.57	11.51		$

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NAME	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
CLONAZEPAM	CLONAZEPAM 0.5MG TABLET	CARACO PHARMACEUTICAL LABS	G	4.22	4.68	5.15	5.61	0.5-8	$
CLONAZEPAM	CLONAZEPAM 1MG TABLET	CARACO PHARMACEUTICAL LABS	G	4.56	5.37	6.18	6.99		$$
CLONAZEPAM	CLONAZEPAM 2MG TABLET	CARACO PHARMACEUTICAL LABS	G	5.01	6.27	7.53	8.79		$$$
DIAZEPAM	DIAZEPAM 2MG TABLET	IVAX PHARMACEUTICALS	G	4.38	5.01	5.63	6.26	10-40	$
DIAZEPAM	DIAZEPAM 5MG TABLET	BARR LABS	G	4.53	5.31	6.09	6.87		$$
DIAZEPAM	DIAZEPAM 10MG TABLET	IVAX PHARMACEUTICALS	G	4.63	5.51	6.39	7.27		$$
HYDROXYZINE PAMOATE	HYDROXYZINE PAM 25MG CAP	IVAX PHARMACEUTICALS	G	4.89	6.02	7.16	8.30	25-600	$$$
HYDROXYZINE PAMOATE	HYDROXYZINE PAM 50MG CAP	EON LABS	G	5.59	7.43	9.27	11.11		$
LORAZEPAM	LORAZEPAM 1MG TABLET	MYLAN PHARMACEUTICALS	G	5.23	6.71	8.19	9.67	0.5-6	$$$$
LORAZEPAM	LORAZEPAM 0.5MG TABLET	"WATSON PHARMA, INC."	G	5.32	6.89	8.46	10.02		$$$$
LORAZEPAM	LORAZEPAM 2MG TABLET	"WATSON PHARMA, INC."	G	7.18	10.62	14.05	17.49		$$$
OXAZEPAM	OXAZEPAM 10MG CAPSULE	IVAX PHARMACEUTICALS	G	8.18	12.61	17.04	21.47	15-90	$$$
OXAZEPAM	OXAZEPAM 15MG CAPSULE	IVAX PHARMACEUTICALS	G	10.83	17.92	25.00	32.08		$$$$
OXAZEPAM	OXAZEPAM 30MG CAPSULE	IVAX PHARMACEUTICALS	G	18.33	32.90	47.48	62.06		$$$$

VA. DMHMRSAS (ACP) FORMULARY: BIPOLAR DISORDER MEDS

NAME	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
CARBAMAZEPINE	CARBAMAZEPINE 200MG TABLET	MAJOR PHARMACEUTICALS	G	5.16	6.57	7.98	9.39	300-1200	$
CLOZAPINE	CLOZAPINE 25MG TABLET	IVAX PHARMACEUTICALS	G	12.41	21.06	29.72	38.37	200-900	$
CLOZAPINE	CLOZAPINE 100MG TABLET	IVAX PHARMACEUTICALS	G	26.25	48.75	71.25	93.75		$$
DIVALPROEX SODIUM	DEPAKOTE 250MG TABLET EC	"ABBOTT LABORATORIES, PPD"		30.83	57.92	85.00	112.08	1000-4250	$$
DIVALPROEX SODIUM	DEPAKOTE ER 500MG TAB SA	"ABBOTT LABORATORIES, PPD"		51.39	99.02	146.66	194.30		$$$$
DIVALPROEX SODIUM	DEPAKOTE 500MG TABLET EC	"ABBOTT LABORATORIES, PPD"		53.70	103.64	153.59	203.54		$$$$
LAMOTRIGINE	LAMICTAL 25MG TABLET	GSK (GLAXOSMITHKLINE)		78.83	153.90	228.98	304.05	*150-200	$
LAMOTRIGINE	LAMICTAL 100MG TABLET	GSK (GLAXOSMITHKLINE)		83.44	163.13	242.83	322.52		$$
LAMOTRIGINE	LAMICTAL 150MG TABLET	GSK (GLAXOSMITHKLINE)		87.50	171.24	254.99	338.73		$$
LAMOTRIGINE	LAMICTAL 200MG TABLET	GSK (GLAXOSMITHKLINE)		91.53	179.31	267.09	354.87		$$
LITHIUM CARBONATE	LITHIUM CARBONATE 300MG CAP	ROXANE LABS INC	G	5.04	6.33	7.62	8.91	900-1800	$
LITHIUM CARBONATE	LITHIUM CARBONATE 300MG TAB	ROXANE LABS INC		8.46	13.18	17.89	22.61		$
OLANZAPINE	ZYPREXA 7.5MG TABLET	ELI LILLY & CO		199.28	394.82	590.35	785.88	10-20	$
OLANZAPINE	ZYPREXA 10MG TABLET	ELI LILLY & CO		248.14	492.54	736.93	981.32		$$$$
OLANZAPINE	ZYPREXA 2.5MG TABLET	ELI LILLY & CO		139.88	276.01	412.14	548.27		$
OLANZAPINE	ZYPREXA 5MG TABLET	ELI LILLY & CO		164.53	325.31	486.09	646.87		$$$

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NAME	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
QUETIAPINE FUMARATE	SEROQUEL 25MG TABLET	ASTRA/ZENECA PHARMACEUTICALS		44.64	85.52	126.41	167.29	150-800	$$$
QUETIAPINE FUMARATE	SEROQUEL 100MG TABLET	ASTRA/ZENECA PHARMACEUTICALS		78.08	152.42	226.75	301.09		$
QUETIAPINE FUMARATE	SEROQUEL 300MG TABLET	ASTRA/ZENECA PHARMACEUTICALS		184.08	364.40	544.73	725.05		$$$$
QUETIAPINE FUMARATE	SEROQUEL 200MG TABLET	ASTRA/ZENECA PHARMACEUTICALS		144.06	284.37	424.68	564.99		$$
RISPERIDONE	RISPERDAL 1MG TABLET	JOHNSON & JOHNSON HCS		89.22	174.70	260.17	345.65	2.0-5.00	$$
RISPERIDONE	RISPERDAL 2MG TABLET	JOHNSON & JOHNSON HCS		137.59	271.43	405.27	539.11		$
RISPERIDONE	RISPERDAL 4MG TABLET	JOHNSON & JOHNSON HCS		223.11	442.47	661.83	881.19		$$$
RISPERIDONE	RISPERDAL 3MG TABLET	JOHNSON & JOHNSON HCS		168.66	333.57	498.48	663.39		$$$
TOPIRAMATE	TOPAMAX 100MG TABLET	JOHNSON & JOHNSON HCS		103.14	202.52	301.91	401.29	100-400	$$$
TOPIRAMATE	TOPAMAX 200MG TABLET	JOHNSON & JOHNSON HCS		120.11	236.46	352.82	469.17		$$$$
TOPIRAMATE	TOPAMAX 25MG TABLET	JOHNSON & JOHNSON HCS		44.55	85.35	126.15	166.95		$$$
VALPROIC ACID	VALPROIC ACID 250MG CAPSULE	UPSHER SMITH LABS	G	8.78	13.80	18.83	23.85	1000-4250	$

*Lower doses required if co-administered with valproate

VA. DMHMRSAS (ACP) FORMULARY: "SIDE EFFECT" MEDICATIONS

NAME	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
AMANTADINE HCL	AMANTADINE 100MG CAPSULE	UPSHER SMITH LABS	G	9.33	14.92	20.50	26.08	100-400	$
BENZTROPINE MESYLATE	BENZTROPINE MES 1MG TABLET	PAR PHARMACEUTICALS	G	5.15	6.55	7.94	9.34	2 - 4	$
BENZTROPINE MESYLATE	BENZTROPINE MES 2MG TABLET	PAR PHARMACEUTICALS	G	5.74	7.74	9.73	11.73		$$
DIPHENHYDRAMINE HCL	DIPHENHYDRAMINE 25MG CAPS	MARLEX PHARMACEUTICALS	G	4.03	4.31	4.60	4.88	50-200	$
DIPHENHYDRAMINE HCL	DIPHENHYDRAMINE 50MG CAPS	MARLEX PHARMACEUTICALS	G	4.09	4.43	4.76	5.10		$
LORAZEPAM	LORAZEPAM 1MG TABLET	MYLAN PHARMACEUTICALS	G	5.23	6.71	8.19	9.67	0.5 - 8	$
LORAZEPAM	LORAZEPAM 0.5MG TABLET	"WATSON PHARMA, INC."	G	5.32	6.89	8.46	10.02		$$
LORAZEPAM	LORAZEPAM 2MG TABLET	"WATSON PHARMA, INC."	G	7.18	10.62	14.05	17.49		$$$
PROCYCLIDINE HYDROCHLORIDE	KEMADRIN 5MG TABLET	MONARCH PHARMACEUTICALS		20.95	38.14	55.34	72.53	2.5-30	$$$$
PROPRANOLOL HCL	PROPRANOLOL 20MG TABLET	"PLIVA, INC."	G	4.47	5.18	5.90	6.62	20-120	$
PROPRANOLOL HCL	PROPRANOLOL 40MG TABLET	"PLIVA, INC."	G	4.60	5.46	6.31	7.17		$
PROPRANOLOL HCL	PROPRANOLOL 80MG TABLET	"PLIVA, INC."	G	4.84	5.93	7.02	8.11		$
TRIHEXYPHENIDYL HCL	TRIHEXYPHENIDYL 2MG TABLET	WEST-WARD PHARMACEUTICAL CO	G	5.52	7.29	9.06	10.83	15-30	$$

VA. DMHMRSAS (ACP) FORMULARY: ANTIDEPRESSANTS

NAME	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
AMITRIPTYLINE HCL	AMITRIPTYLINE HCL 10MG TAB	"QUALITEST PHARMACEUTICALS, INC"	G	4.21	4.66	5.12	5.58	75-300	$
AMITRIPTYLINE HCL	AMITRIPTYLINE HCL 25MG TAB	"QUALITEST PHARMACEUTICALS, INC"	G	4.27	4.80	5.32	5.84		$
AMITRIPTYLINE HCL	AMITRIPTYLINE HCL 50MG TAB	"QUALITEST PHARMACEUTICALS, INC"	G	4.38	5.00	5.63	6.26		$
AMITRIPTYLINE HCL	AMITRIPTYLINE HCL 75MG TAB	"QUALITEST PHARMACEUTICALS, INC"	G	4.90	6.05	7.21	8.36		$
AMITRIPTYLINE HCL	AMITRIPTYLINE HCL 100MG TAB	"QUALITEST PHARMACEUTICALS, INC"	G	5.06	6.38	7.69	9.01		$
AMITRIPTYLINE HCL/ PERPHENAZINE	AMITRIP/PERPHEN 10-2 TABLET	MYLAN PHARMACEUTICALS	G	5.43	7.10	8.78	10.46	Based on Amitryp.	$
AMITRIPTYLINE HCL/ PERPHENAZINE	AMITRIP/PERPHEN 25-2 TABLET	MYLAN PHARMACEUTICALS	G	5.70	7.66	9.61	11.56		$
AMITRIPTYLINE HCL/ PERPHENAZINE	AMITRIP/PERPHEN 25-4 TABLET	MYLAN PHARMACEUTICALS	G	6.16	8.57	10.98	13.39		$
AMOXAPINE	AMOXAPINE 50MG TABLET	"WATSON PHARMA, INC."	G	14.57	25.38	36.20	47.01	100-600	$$
AMOXAPINE	AMOXAPINE 100MG TABLET	"WATSON PHARMA, INC."	G	22.28	40.80	59.33	77.85		$$$$
BUPROPION HCL	BUPROPION HCL 75MG TABLET	MYLAN PHARMACEUTICALS	G	8.70	13.65	18.60	23.55	225-450	$
BUPROPION HCL	BUPROPION HCL 100MG TABLET	MYLAN PHARMACEUTICALS	G	9.57	15.39	21.21	27.03		$

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VA. DMHMRSAS (ACP) Formulary: Antidepressants, continued from previous page

NAME	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
BUPROPION HCL	WELLBUTRIN SR 150MG TAB SA	GSK (GLAXOSMITHKLINE)		55.41	107.06	158.72	210.37	150-300	$$
BUPROPION HCL	WELLBUTRIN SR 100MG TAB SA	GSK (GLAXOSMITHKLINE)		51.95	100.14	148.34	196.53		$
CLOMIPRAMINE HCL	CLOMIPRAMINE 25MG CAPSULE	TARO PHARMACEUTICALS	G	5.67	7.58	9.50	11.42	75-300	$
CLOMIPRAMINE HCL	CLOMIPRAMINE 50MG CAPSULE	TARO PHARMACEUTICALS	G	6.58	9.41	12.24	15.07		$
CLOMIPRAMINE HCL	CLOMIPRAMINE 75MG CAPSULE	TARO PHARMACEUTICALS	G	7.91	12.07	16.23	20.39		$
DESIPRAMINE HCL	DESIPRAMINE 25MG TABLET	EON LABS	G	8.42	13.10	17.77	22.45	75-300	$
DESIPRAMINE HCL	DESIPRAMINE 50MG TABLET	EON LABS	G	12.55	21.35	30.15	38.95		$$
DESIPRAMINE HCL	DESIPRAMINE 75MG TABLET	EON LABS	G	14.95	26.15	37.35	48.55		$$
DESIPRAMINE HCL	DESIPRAMINE 100MG TABLET	EON LABS	G	18.47	33.18	47.90	62.61		$$$
DOXEPIN HCL	DOXEPIN 10MG CAPSULE	PAR PHARMACEUTICALS	G	4.72	5.69	6.67	7.64	75-300	$
DOXEPIN HCL	DOXEPIN 25MG CAPSULE	PAR PHARMACEUTICALS	G	4.84	5.94	7.03	8.12		$
DOXEPIN HCL	DOXEPIN 50MG CAPSULE	PAR PHARMACEUTICALS	G	5.33	6.91	8.49	10.07		$
DOXEPIN HCL	DOXEPIN 75MG CAPSULE	PAR PHARMACEUTICALS	G	5.79	7.84	9.88	11.92		$
DOXEPIN HCL	DOXEPIN 100MG CAPSULE	PAR PHARMACEUTICALS	G	6.40	9.05	11.70	14.35		$
ESCITALOPRAM OXALATE	LEXAPRO 10MG TABLET	FOREST PHARMACEUTICALS		57.59	111.42	165.26	219.09	10-20	$$
ESCITALOPRAM OXALATE	LEXAPRO 20MG TABLET	FOREST PHARMACEUTICALS		59.93	116.11	172.29	228.47		$$$

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VA. DMHMRSAS (ACP) Formulary: Antidepressants, continued from above

NAME	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
FLUOXETINE HCL	FLUOXETINE 20MG CAPSULE	"PLIVA, INC."	G	4.60	5.46	6.31	7.17	10-80	$
FLUOXETINE HCL	FLUOXETINE 10MG CAPSULE	"PLIVA, INC."	G	4.68	5.61	6.54	7.47		$
FLUVOXAMINE MALEATE	FLUVOXAMINE MAL 100MG TAB	EON LABS	G	16.01	28.26	40.52	52.77	50-300	$$$
IMIPRAMINE HCL	IMIPRAMINE HCL 10MG TABLET	PAR PHARMACEUTICALS	G	7.98	12.21	16.44	20.67	75-300	$
IMIPRAMINE HCL	IMIPRAMINE HCL 25MG TABLET	PAR PHARMACEUTICALS	G	9.04	14.33	19.62	24.91		$
IMIPRAMINE HCL	IMIPRAMINE HCL 50MG TABLET	PAR PHARMACEUTICALS	G	11.60	19.46	27.31	35.17		$$
MAPROTILINE HCL	MAPROTILINE 25MG TABLET	MYLAN PHARMACEUTICALS	G	10.89	18.03	25.17	32.31	100-225	$$
MAPROTILINE HCL	MAPROTILINE 50MG TABLET	MYLAN PHARMACEUTICALS	G	14.28	24.81	35.34	45.87		$$
MIRTAZAPINE	REMERON 30MG SOLTAB	ORGANON		67.33	130.91	194.49	258.07	15-60	$$$$
MIRTAZAPINE	REMERON 45MG SOLTAB	ORGANON		71.50	139.25	207.00	274.75		$
NEFAZODONE HCL	NEFAZODONE HCL 200MG TABLET	IVAX PHARMACEUTICALS	G	10.65	17.54	24.44	31.33	100-600	$$
NEFAZODONE HCL	NEFAZODONE HCL 100MG TABLET	IVAX PHARMACEUTICALS	G	10.71	17.67	24.62	31.58		$$
NEFAZODONE HCL	NEFAZODONE HCL 150MG TABLET	IVAX PHARMACEUTICALS	G	10.78	17.81	24.83	31.86		$$
NEFAZODONE HCL	NEFAZODONE HCL 250MG TABLET	IVAX PHARMACEUTICALS	G	11.06	18.37	25.68	32.99		$$

Continued on next page

VA. DMHMRSAS (ACP) Formulary: Antidepressants, continued from previous page

NAME	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
NORTRIPTYLINE HCL	NORTRIPTYLINE HCL 10MG CAP	TEVA PHARMACEUTICALS USA	G	4.82	5.88	6.95	8.01	40-200	$
NORTRIPTYLINE HCL	NORTRIPTYLINE HCL 25MG CAP	"WATSON PHARMA, INC."	G	5.08	6.40	7.73	9.05		$
NORTRIPTYLINE HCL	NORTRIPTYLINE HCL 50MG CAP	TEVA PHARMACEUTICALS USA	G	5.52	7.29	9.06	10.83		$
NORTRIPTYLINE HCL	NORTRIPTYLINE HCL 75MG CAP	TEVA PHARMACEUTICALS USA	G	6.00	8.25	10.51	12.76		$
PAROXETINE HCL	PAROXETINE HCL 20MG TABLET	MAJOR PHARMACEUTICALS	G	49.56	95.36	141.17	186.98	10-60	$
PAROXETINE HCL	PAROXETINE HCL 30MG TABLET	MAJOR PHARMACEUTICALS	G	50.95	98.15	145.35	192.55		$
PAROXETINE HCL	PAROXETINE HCL 40MG TABLET	MAJOR PHARMACEUTICALS	G	52.61	101.48	150.34	199.20		$$
PROTRIPTYLINE HCL	VIVACTIL 5MG TABLET	ODYSSEY PHARMACEUTICALS		25.98	48.21	70.44	92.67	20-60	$
PROTRIPTYLINE HCL	VIVACTIL 10MG TABLET	ODYSSEY PHARMACEUTICALS		35.97	68.18	100.40	132.62		$$
SERTRALINE HCL	ZOLOFT 100MG TABLET	PFIZER U.S.		72.71	141.68	210.64	279.61	50-200	$
TRANYLCYPROMINE SULFATE	PARNATE 10MG TABLET	GSK (GLAXOSMITHKLINE)		21.99	40.22	58.46	76.70	20-60	$$$$
TRAZODONE HCL	TRAZODONE 50MG TABLET	"PLIVA, INC."	G	4.37	5.00	5.62	6.25	150-600	$
TRAZODONE HCL	TRAZODONE 100MG TABLET	"PLIVA, INC."	G	4.98	6.21	7.44	8.67		$

Continued below

VA. DMHMRSAS (ACP) Formulary: Antidepressants, continued from above

NAME	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
VENLAFAXINE HCL	EFFEXOR XR 37.5MG CAP SA	WYETH PHARMACEUTICALS		73.59	143.43	213.27	283.11	75-375	$$
VENLAFAXINE HCL	EFFEXOR XR 75MG CAPSULE SA	WYETH PHARMACEUTICALS		81.99	160.23	238.47	316.71		$$$
VENLAFAXINE HCL	EFFEXOR XR 150MG CAPSULE SA	WYETH PHARMACEUTICALS		88.97	174.18	259.40	344.61		$$$$

VA. DMHMRSAS (ACP) FORMULARY: ANTIPSYCHOTICS

GENERIC	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
ARIPIPRAZOLE	ABILIFY 10MG TABLET	BRISTOL-MYERS SQUIBB		267.14	530.53	793.91	1,057.30	10-15	$$$$
ARIPIPRAZOLE	ABILIFY 15MG TABLET	BRISTOL-MYERS SQUIBB		267.14	530.53	793.91	1,057.30		$$$$
ARIPIPRAZOLE	ABILIFY 20MG TABLET	BRISTOL-MYERS SQUIBB		376.23	748.72	1,121.20	1,493.68		$$$$
ARIPIPRAZOLE	ABILIFY 30MG TABLET	BRISTOL-MYERS SQUIBB		376.23	748.72	1,121.20	1,493.68		$$$$
CHLORPROMAZINE HCL	CHLORPROMAZINE 25MG TABLET	UPSHER SMITH LABS	G	6.76	9.76	12.77	15.78	300-600	$
CHLORPROMAZINE HCL	CHLORPROMAZINE 10MG TABLET	UPSHER SMITH LABS	G	7.06	10.38	13.69	17.00		$
CHLORPROMAZINE HCL	CHLORPROMAZINE 50MG TABLET	UPSHER SMITH LABS	G	7.36	10.96	14.57	18.17		$
CHLORPROMAZINE HCL	CHLORPROMAZINE 100MG TABLET	UPSHER SMITH LABS	G	8.60	13.45	18.29	23.14		$
CHLORPROMAZINE HCL	CHLORPROMAZINE 200MG TABLET	UPSHER SMITH LABS	G	9.75	15.75	21.75	27.75		$
CLOZAPINE	CLOZAPINE 25MG TABLET	IVAX PHARMACEUTICALS	G	12.41	21.06	29.72	38.37	200-600	$
CLOZAPINE	CLOZAPINE 100MG TABLET	IVAX PHARMACEUTICALS	G	26.25	48.75	71.25	93.75		$

Continued below

VA. DMHMRSAS (ACP) Formulary: Antipsychotics, continued from above

GENERIC	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
FLUPHENAZINE DECANOATE	FLUPHENAZINE DEC 25MG/ML 5ML VL	SICOR PHARMACEUTICAL	G	NA	NA	NA	NA	NA	$
FLUPHENAZINE HCL	FLUPHENAZINE 1MG TABLET	PAR PHARMACEUTICALS	G	5.19	6.64	8.08	9.52	5-20	$
FLUPHENAZINE HCL	FLUPHENAZINE 2.5MG TABLET	PAR PHARMACEUTICALS	G	5.29	6.83	8.37	9.90		$
FLUPHENAZINE HCL	FLUPHENAZINE 5MG TABLET	PAR PHARMACEUTICALS	G	5.74	7.73	9.71	11.70		$
FLUPHENAZINE HCL	FLUPHENAZINE 10MG TABLET	PAR PHARMACEUTICALS	G	6.44	9.14	11.83	14.52		$
HALOPERIDOL	HALOPERIDOL 0.5MG TABLET	MYLAN PHARMACEUTICALS	G	5.08	6.40	7.73	9.05	5-20	$
HALOPERIDOL	HALOPERIDOL 1MG TABLET	MYLAN PHARMACEUTICALS	G	5.83	7.91	9.99	12.07		$
HALOPERIDOL	HALOPERIDOL 2MG TABLET	MYLAN PHARMACEUTICALS	G	6.59	9.42	12.26	15.09		$
HALOPERIDOL	HALOPERIDOL 5MG TABLET	MYLAN PHARMACEUTICALS	G	6.89	10.02	13.16	16.29		$
HALOPERIDOL DECANOATE	HALOPERIDOL DEC 50MG/ML 1ML VL	SICOR PHARMACEUTICAL	G	NA	NA	NA	NA	NA	$
HALOPERIDOL DECANOATE	HALOPERIDOL DEC 100MG/ML 1ML VL	SICOR PHARMACEUTICAL	G	NA	NA	NA	NA		$
HALOPERIDOL DECANOATE	HALOPERIDOL DEC 100MG/ML 5ML VL	BEDFORD LABS	G	NA	NA	NA	NA		$
HALOPERIDOL DECANOATE	HALOPERIDOL DEC 50MG/ML 5ML VL	BEDFORD LABS	G	NA	NA	NA	NA		$

Continued on next page

VA. DMHMRSAS (ACP) Formulary: Antipsychotics, continued from previous page

GENERIC	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
LOXAPINE SUCCINATE	LOXITANE 5MG CAPSULE	"WATSON PHARMA, INC."		34.45	65.15	95.85	126.55	30-100	$$
LOXAPINE SUCCINATE	LOXITANE 10MG CAPSULE	"WATSON PHARMA, INC."		43.42	83.08	122.75	162.41		$$
LOXAPINE SUCCINATE	LOXITANE 25MG CAPSULE	"WATSON PHARMA, INC."		63.68	123.62	183.55	243.49		$$$
LOXAPINE SUCCINATE	LOXITANE 50MG CAPSULE	"WATSON PHARMA, INC."		83.72	163.69	243.65	323.62		$$$$
OLANZAPINE	ZYPREXA 2.5MG TABLET	ELI LILLY & CO		139.88	276.01	412.14	548.27	10-20	$$
OLANZAPINE	ZYPREXA 5MG TABLET	ELI LILLY & CO		164.53	325.31	486.09	646.87		$$$
OLANZAPINE	ZYPREXA 7.5MG TABLET	ELI LILLY & CO		199.28	394.82	590.35	785.88		$
OLANZAPINE	ZYPREXA 10MG TABLET	ELI LILLY & CO		248.14	492.54	736.93	981.32		$$$
PERPHENAZINE	PERPHENAZINE 2MG TABLET	RICHMOND	G	7.85	11.96	16.06	20.17	16-64	$
PERPHENAZINE	PERPHENAZINE 4MG TABLET	RICHMOND	G	9.20	14.65	20.10	25.55		$
PERPHENAZINE	PERPHENAZINE 8MG TABLET	RICHMOND	G	10.99	18.23	25.48	32.72		$
PERPHENAZINE	PERPHENAZINE 16MG TABLET	IVAX PHARMACEUTICALS	G	12.33	20.92	29.50	38.08		$
QUETIAPINE FUMARATE	SEROQUEL 25MG TABLET	ASTRA/ZENECA PHARMACEUTICALS		44.64	85.52	126.41	167.29	150-800	$$
QUETIAPINE FUMARATE	SEROQUEL 100MG TABLET	ASTRA/ZENECA PHARMACEUTICALS		78.08	152.42	226.75	301.09		$$$$

Continued below

VA. DMHMRSAS (ACP) Formulary: Antipsychotics, continued from above

GENERIC	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
QUETIAPINE FUMARATE	SEROQUEL 200MG TABLET	ASTRA/ZENECA PHARMACEUTICALS		144.06	284.37	424.68	564.99		$$
QUETIAPINE FUMARATE	SEROQUEL 300MG TABLET	ASTRA/ZENECA PHARMACEUTICALS		184.08	364.40	544.73	725.05		$$$$
RISPERIDONE	RISPERDAL 1MG TABLET	JOHNSON & JOHNSON HCS		89.22	174.70	260.17	345.65	2 - 6	$$$$
RISPERIDONE	RISPERDAL 2MG TABLET	JOHNSON & JOHNSON HCS		137.59	271.43	405.27	539.11		$$
RISPERIDONE	RISPERDAL 3MG TABLET	JOHNSON & JOHNSON HCS		168.66	333.57	498.48	663.39		$$$$
RISPERIDONE	RISPERDAL 4MG TABLET	JOHNSON & JOHNSON HCS		223.11	442.47	661.83	881.19		$$
RISPERIDONE MICROSPHERES	RISPERDAL CONSTA 25MG SYR 2ML	JOHNSON & JOHNSON HCS		NA	NA	NA	NA	NA	$$$$
RISPERIDONE MICROSPHERES	RISPERDAL CONSTA 37.5MG SYR 2ML	JOHNSON & JOHNSON HCS		NA	NA	NA	NA		$$$$
RISPERIDONE MICROSPHERES	RISPERDAL CONSTA 50MG SYR 2ML	JOHNSON & JOHNSON HCS		NA	NA	NA	NA		$$$$
THIORIDAZINE HCL	THIORIDAZINE 10MG TABLET	MYLAN PHARMACEUTICALS	G	7.08	10.41	13.74	17.07	200-400	$
THIORIDAZINE HCL	THIORIDAZINE 25MG TABLET	MYLAN PHARMACEUTICALS	G	8.32	12.90	17.47	22.04		$
THIORIDAZINE HCL	THIORIDAZINE 50MG TABLET	MYLAN PHARMACEUTICALS	G	9.58	15.40	21.23	27.05		$
THIORIDAZINE HCL	THIORIDAZINE 100MG TABLET	MYLAN PHARMACEUTICALS	G	11.25	18.75	26.25	33.75		$

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VA. DMHMRSAS (ACP) Formulary: Antipsychotics, continued from previous page

GENERIC	TRADE NAME	VENDOR	G	ACP COST REPACK 30's	ACP COST REPACK 60's	ACP COST REPACK 90's	ACP COST REPACK 120's	Typical Daily *mg* Dose (Range)	ACP $ GUIDE (BULK)
THIOTHIXENE	THIOTHIXENE 1MG CAPSULE	SANDOZ	G	6.13	8.51	10.90	13.28	10-50	$
THIOTHIXENE	THIOTHIXENE 2MG CAPSULE	MYLAN PHARMACEUTICALS	G	6.82	9.89	12.95	16.02		$
THIOTHIXENE	THIOTHIXENE 5MG CAPSULE	MYLAN PHARMACEUTICALS	G	8.53	13.31	18.09	22.87		$
THIOTHIXENE	THIOTHIXENE 10MG CAPSULE	MYLAN PHARMACEUTICALS	G	10.32	16.90	23.47	30.04		$
TRIFLUOPERAZINE HCL	TRIFLUOPERAZINE 2MG TABLET	MYLAN PHARMACEUTICALS	G	8.13	12.51	16.89	21.27	15-40	$
TRIFLUOPERAZINE HCL	TRIFLUOPERAZINE 5MG TABLET	MYLAN PHARMACEUTICALS	G	8.84	13.92	19.01	24.09		$
TRIFLUOPERAZINE HCL	TRIFLUOPERAZINE 10MG TABLET	MYLAN PHARMACEUTICALS	G	9.75	15.75	21.75	27.75		$
ZIPRASIDONE HCL	GEODON 20MG CAPSULE	PFIZER U.S.		121.12	238.49	355.86	473.23	80-160	$
ZIPRASIDONE HCL	GEODON 40MG CAPSULE	PFIZER U.S.		121.12	238.49	355.86	473.23		$
ZIPRASIDONE HCL	GEODON 60MG CAPSULE	PFIZER U.S.		131.57	259.38	387.20	515.01		$$
ZIPRASIDONE HCL	GEODON 80MG CAPSULE	PFIZER U.S.		131.57	259.38	387.20	515.01		$$

COMMON ANTIPSYCHOTIC ADVERSE EFFECTS: COMPARISON / SUMMARY TABLE

	EPS	Sedation	TD	Anticholinergic	Cardiovascular	Sexual Dysfunct.	Prolactin	Weight Gain	Lipids	DM
Chlorpromazine (Thorazine)	+++	++++	++++	+++	+++	+++	+++	+++	++	++
Haloperidol (Haldol)	++++	+	++++	+	+	+	++++	++	±	±
Loxapine (Loxitane)	+++	++	+++	+	++	+++	+++	++	±	±
Aripiprazole (Abilify)	±	±	?	-	±	?	-	-	-	?
Clozapine (Clozaril)	+/-	++++	-	++++	+++	+	-	++++	+++	+++
Olanzapine (Zyprexa)	+	++	+	++	+	-	+	++++	+++	+++
Quetiapine (Seroquel)	-	++	?	±	++	-	-	+++	++	++
Risperidone (Risperdal)	++	+	+	+	+	+	+++	++	+	+
Ziprasidone (Geodon)	+	++	+	+	+	-	++	-	-	?

- Not noted **± Possible** **+ Mild / Low** **++ Moderate** **+++ High** **++++ Very High**

Bezchlibnyk-Butler & Jeffries, Clinical Handbook Psychotropic Drugs, 10th ed.; Fuller & Sajatovic, DI Handbook for Psychiatry; 3rd Ed; Puzantian & Stimmel, "Review of Psychotropic Drugs", Pharmacy Practice News, 2003; PI's: AZ, BMS, Janssen, Lilly, Pfizer

ANTICHOLINERGIC EFFECTS OF COMMON PSYCHOTROPICS

ANTICHOLINERGICS

DRUG	COMMON ADVERSE EFFECTS*
Diphenhydramine	++
Benztropine	+++
Trihexyphenidyl	**++++**

ANTIPSYCHOTICS

DRUG	COMMON ADVERSE EFFECTS
Haloperidol	
Molindone	
Fluphenazine	+
Perphenazine	+
Thiothixene	+
Trifluoperazine	+
Loxapine	+
Mesoridazine	++
Chlorpromazine	+++
Thioridazine	+++
Clozapine	**+++**

ANTIDEPRESSANTS

DRUG	COMMON ADVERSE EFFECTS
Trazodone	
Fluoxetine	+
Amoxapine	+
Maprotiline	+
Desipramine	++
Nortriptyline	++
Imipramine	+++
Doxepin	+++
Amitriptyline	**+++**

*Anticholinergic adverse effects are related to anticholinergic action (as related to atropine); higher the value, higher the risk. Psychotropics bolded in red are most anticholinergic in class. *Be sure to monitor for additive anticholinergic effects between agents.*

** Common GI Adverse Effects: constipation, blurred vision, N&V, dry mouth

*** Common CNS Adverse Effects: stimulation, disorientation, confusion, hallucinations, restlessness, cognitive impairment

**** Common CV Adverse Effects: palpitations, tachycardia

Bezchlibnyk-Butler & Jeffries, Clinical Handbook Psychotropic Drugs, 10th ed.; Fuller & Sajatovic, DI Handbook for Psychiatry; 3rd Ed; Puzantian & Stimmel, "Review of Psychotropic Drugs", Pharmacy Practice News, 2003; PI's of listed agents above

*NASMHPD PSYCHIATRIC POLYPHARMACY RECOMMENDATIONS:

A. Before adding a second medication to a regimen,
the following are considered appropriate practices:

- For most psychiatric disorders, at least 2-3 trials of monotherapy with chemically distinct classes of agents should be tried prior to treatment with multiple agents.
- Actual practice will vary by disorder. When polypharmacy is to be used, accepted evidence-based guidelines, if available, should be followed.
- After failing therapy on single agents, the patient's psychiatric diagnosis should be reevaluated before initiating therapy with multiple medications.
- Only one medication should be changed at a time. *In order to assess the adverse effects of & therapeutic response to a medication, only one actual medication trial can be monitored & evaluated at any time.*
- The first thing a clinician should consider when a patient does not respond to a medication is whether the patient is taking the medication correctly, (if at all). Therefore, consider the patient's current adherence to treatment before adding medications. To increase adherence, preference should be given to the simplest effective treatment regimen.
- Many psychiatric medications can be dosed once a day; very few need more than twice a day dosing.
- A single medication should be given adequate time at an effective dose to produce a therapeutic response. This includes at least 5 half-lives at a single dose to reach a steady blood concentration, plus additional time to evaluate the clinical response & adverse effects.
    - ❖ For antidepressants & anti-anxiety medications, several weeks are often needed to evaluate clinical response / adverse effects.
    - ❖ For antipsychotics and mood stabilizers, several months may be required for evaluation of clinical response / adverse effects.
- An important aspect of polypharmacy is drug-drug interactions. A majority of psychotropic medications pharmacokinetic drug interactions are due to the Cytochrome P450 System (CYP450). Clinically significant drug interactions are involved in problematic drug side effects & ineffective pharmacotherapy. These interactions may be life threaten-

ing. Drug-drug interactions are preventable. A clinician should have a comprehensive understanding of the liver enzyme system, CYP450.

- The prescriber & patient should define an acceptable response to the new medication & what type of response would result in discontinuance of the new medication.
- The patient should be educated on how long the medication will take to reach its maximum effect & the effect the new medication is expected to produce.
- The patient's functioning should be considered more important than treatment of the patient's symptoms. *For example, the use of sedating medications may reduce some of the patient's symptoms, but may unfavorably reduce the patient's functioning.*
- Consider treatment alternatives, such as the use of psychosocial interventions, before prescribing additional medication.
- The patient's total drug load should be addressed to consider the patient's ability to adhere to a more complicated medication regimen.
- The patient's ability to pay for or obtain their medications should be considered when adding to their therapy.
- All other "remedies" the patient is currently taking should be addressed, including OTC medication use, cultural remedies, herbal remedies & illicit drug use.
- The frequency and duration of physician visits should allow for appropriate assessment of response before the patient is discharged or further medication changes are made.

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B. During treatment with multiple medications,
these considerations should guide therapy:

- The principle of 'start low, go slow' should be followed when initiating new medications, particularly in elderly, pediatric patients or medically compromised patients.
- Drug interactions should be anticipated & monitored when an additional medication is added. If an interaction drug is added, blood levels of interacting medications should be checked where appropriate. *For example, adding fluoxetine to clozapine has been associated with at least one reported death in the literature secondary to potential drug interaction.*
- The prescriber should communicate with all health care providers involved with the patient.
- Interventions to improve adherence with & access to medication therapy need to be identified & implemented.
- For patients in an inpatient facility who have had their medication dose or regimen recently changed, time should be allowed for appropriate assessment of response before the patient is discharged or further medication changes are made.
- Bioethnic differences should be considered when assessing a patient's response to medications.

C. After the patient has been using multiple medications,
consider the following points when monitoring ongoing therapy:

- Discontinuing medications that do not yield the expected response.
- Cross-tapers initiated to switch the patient from one medication to another should be completed.
- Patients who are using multiple medications, & who are potentially suffering from medication-related problems, should be considered for a wash-out period as a part of reassessment.
- If possible, the medication regimen should be simplified by dropping psychiatric medications in order to reassess the patient close to baseline. *This does not have to involve removing all of the medications.*

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D. The following inappropriate use of polypharmacy should be avoided:

- Generally, same-class polypharmacy should not be used to treat the same symptoms in a patient.
- More than one medication from any of the following medication classes should not be used in a single patient:
  - ❖ Typical antipsychotics (haloperidol, fluphenazine, etc.),
  - ❖ Selective serotonin reuptake inhibitors (paroxetine, fluoxetine, etc.),
  - ❖ Tricyclic antidepressants (amitriptyline, imipramine, etc.),
  - ❖ Monoamine oxidase inhibitors (phenelzine, tranylcypromine, etc.),
  - ❖ Stimulants (methylphenidate, amphetamine),
  - ❖ Benzodiazepines (diazepam, alprazolam, etc.).
- More than two antipsychotic medications, typical or atypical, should not be used simultaneously.
- The dose of medication should not be adjusted until blood levels have reached steady state and sufficient time to achieve therapeutic effect has passed.
- Patients should not be discharged from an inpatient facility without allowing adequate time for the effects of the medication to be assessed. *Patients on polypharmacy at the time of discharge from a facility are at a higher risk of subsequent medication problems.*
- An increased level of monitoring & support should be considered when the patient is discharged with a complicated medication regimen.

* NASMHPD Technical Report on Psychiatric Polypharmacy, 2001. The NASMHPD Technical report originates from the National Association of State Mental Health Program Directors.

Continued below

ANTIPSYCHOTIC SWITCH METHODS *NOTES

*No single crossover technique has been recognized as the accepted protocol. Abrupt crossovers to early atypical antipsychotics have been unsuccessful; current accepted practices include cross-titration (gradually reducing the dose of the first antipsychotic while gradually increasing the dose of the new antipsychotic) and slowly overlapping and tapering antipsychotics (maintaining the dose of the old antipsychotic until the new antipsychotic is at full therapeutic dose).

*The switch should be undertaken over a period of 4 to 5 weeks if the switch does not involve clozapine and 7 to 8 weeks if the switch involves clozapine.

*Withdrawal Symptoms. The signs and symptoms associated with antipsychotic medication withdrawal are varied. A reemergence or worsening of psychosis, rebound or unmasked dyskinesia, and cholinergic rebound can occur.

Reminder:

*Psychotic symptoms may be exacerbated by withdrawal symptoms and by the patient's anxiety over switching medication.

*In most instances, the rebound of antipsychotic withdrawal can be prevented by cautiously and slowly withdrawing the existing antipsychotic agent and any concurrent antiparkinsonian drug or sedative hypnotic.

*If the patient is taking an anticholinergic agent in combination with a conventional agent that is being discontinued, the anticholinergic agent should be gradually tapered over 1 to 2 weeks following discontinuation of the oral conventional antipsychotic (longer if the previous medication was a depot formulation). *The risk of cholinergic rebound is greatest with low potency antipsychotic agents which have stronger anticholinergic effects than high potency agents. It is recommended that all anticholinergic agents be discontinued, if possible.*

*Olanzapine and clozapine have considerable anticholinergic, antiadrenergic, and antiserotonergic activity; withdrawal symptoms may be expected to occur when these drugs are discontinued.

*Medication dosage errors are common and may be caused by the dosage regimens used during a medication change.

Bezchlibnyk-Butler & Jeffries, Clinical Handbook Psychotropic Drugs, 10th ed.; Expert Consensus Guidelines, J Clin Psych. 1999; 60 (suppl.11); Weiden. J Clin Psych 1997; 58(suppl 10); Weiden J, et. al., J Clin Psych 1998; 59 (suppl.19).

ANTIPSYCHOTIC [AP] SWITCH METHODS

1. ABRUPT DISCONTINUATION	ADVANTAGES	DISADVANTAGES
Abrupt discontinuation of first AP and starting a new AP *(e.g., stop previous agent immediately & rapidly increase new agent)*	• Straightforward • Best for inpatient setting or where patients are supervised and fast crossovers are needed • Medication errors less likely • Appropriate for patients on depot meds secondary to long half-life	• Increased chance of withdrawal reactions associated with removal of AP #1 • Not recommended for patients receiving clozapine • High risk of relapse

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2. CROSS TITRATION OR CROSS TAPERS	ADVANTAGES	DISADVANTAGES
Overlap and tapering strategies *(Note: slower titrations [e.g., 6 weeks or more], result in improved effect).* A. Gradual Cross Taper (Begin to decrease dose of AP #1; at the same time, initiate AP #2; increase dose to maintenance over 2 to 6 weeks) B. Full Dose CrossTitration (Maintain AP #1 dose; initiate AP #2 & increase to maintenance; overlap & maintain stable doses for two weeks; decrease to cessation AP #1) C. 50% Reduction Taper (Immediate 50% dose decrease AP #1; simultaneous initiation AP #2 to 50% maintenance dose; follow with gradual dose adjustment e.g., decrease AP #1 to cessation; increase AP #2 to maintenance)	• Appropriate when relief from adverse effects such as EPS is needed • Perhaps the safest method when consequences of crossover relapse(s) are greatest concern • May be appropriate to use the crossover time as a test period to ascertain oral compliance for patients on depot antipsychotics • May be appropriate when switching patients who have been recently stabilized (<3 mo) from an acute psychotic episode	• If down taper occurs too quickly, possibility exists that both APs will be at subtherapeutic doses • Greater possibility of ongoing polypharmacy should taper not be finished

Bezchlibnyk-Butler & Jeffries, Clinical Handbook Psychotropic Drugs, 10th ed.; Expert Consensus Guidelines, J Clin Psych. 1999; 60 (suppl.11); Weiden. J Clin Psych 1997; 58(suppl 10); Weiden J, et. al., J Clin Psych 1998; 59 (suppl.19).

CONVENTIONAL ANTIPSYCHOTICS: POTENCY TABLE

High	Mid	Low
Haloperidol	Perphenazine	Chlorpromazine
Fluphenazine	Loxapine	Thioridazine
Trifluoperazine	Molindone	Mesoridazine
Thiothixene		

REVIEW:

All First Generation Antipsychotics (FGA; conventional antipsychotics) have equal efficacy; the selection of drug is based on adverse effect profile and patient comorbidity. Conventional agents increase density of post-synaptic D2 receptors (supersensitivity).

A9 Tract / Nigrostriatal path (midbrain to neostriatum), responsible for **Extrapyramidal adverse effects**

A 10 / Mesolimbic (midbrain to limbic structures) possibly associated with **relief of positive symptoms / psychosis**

A 10 / Mesocortical (midbrain to frontal and temporal cerebral cortex) possibly associated with **relief of negative symptoms**

Adverse effects with conventional agents:

High-potency conventional agents:
Dystonia
Akathisia
Parkinsonism

Low potency agents
Sedation
Hypotension
Weight gain (*molindone may produce weight loss*)
Anticholinergic symptoms (*dry mouth, urinary retention, constipation, blurred vision*)

Continued below

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Adverse effects unrelated to potency--
(can occur with all D2 antagonists)
Hyperprolactinemia (amenorrhea, galactorrhea, sexual dysfunction)
Tardive dyskinesia
Neuroleptic malignant syndrome
Other: Impaired heat regulation (hyper or hypothermia); pigmentary retinopathy (thioridazine >800mg/d); ECG changes (pimozide, chlorpromazine, thioridazine)

Extrapyramidal Side Effects (EPS)

Dystonia
Involuntary muscle contraction--may involve tongue, neck, back, eyes
Extremely uncomfortable, jeopardizes future compliance
Usually occurs within first four days of neuroleptic treatment
Risk factors: young males and high-potency neuroleptics
All patients under age 30 started on high potency neuroleptics should receive prophylaxis: benztropine 2 mg bid x 10 days-then taper

ANTIPSYCHOTIC DOSING: GENERAL PRINCIPLES

Treating first-break patients:

- Avoid side effects (drug selection and dosing)
- Prophylax for dystonia if using conventional neuroleptic
- Develop alliance
- Educate patient and family about illness and treatment
- Best to use low to moderate fixed doses (e.g., haloperidol 5-15mg/d, risperidone 2-4 mg/d, olanzapine 10-15mg/d, quetiapine 300-600mg/d, ziprasidone 80-120 mg/d, aripiprazole 10-15 mg/d)
- An adequate trial should last 4-6 wks.
- Data suggests a rapid & early response within 7 days onset of treatment
- Gradual improvement seen over 4 to 12 weeks

Response of first-break patients:

- Respond better than chronic patients
- 74% full remission; 12% partial response
- Respond to lower doses
- Early treatment associated with better outcome

Continued on next page

Blood levels

- Should not substitute for clinical titration
- Inconsistent evidence for haloperidol "therapeutic window" (5-15 ng/mL)
- Approx 7% of patients (Caucasian, Asian), are slow metabolizers (low P450 2D6)-may develop toxic levels
- Blood levels useful in cases of nonresponse, noncompliance, or drug interactions

"Therapeutic Ranges"

- Haloperidol 5-15 ng/mL
- Chlorpromazine 30-100 ng/mL
- Fluphenazine 0.2-2.0 ng/mL
- Perphenazine 0.8-2.4 ng/mL
- Clozapine >350 ng/ml

Estimated Relapse Rates

Relapse rates in schizophrenia

	Medication (N)	Placebo (N)
Relapse in first year	41% (814)	68% (189)
Second year post discharge	15% (500)	65% (448)

C. Jackson, Pharm.D., BCPP, with permission.

Maintenance Treatment

- **Haloperidol** conversion:

  10 mg/d ORAL x10-20mg = Injectable decanoate dose
  Haloperidol time to steady state (Css) approximately 3
  3 months

- **Fluphenazine** decanoate:
- Conventional dose Fluphenazine decanoate: 25mg—50mg q 2wks
- Low dose Fluphenazine decanoate considered 5mg 12.5mg q 2 wks
- Low dose and conventional doses of Fluphenazine decanoate: approximately equal in efficacy against relapse in first year
- Low dose produces significantly less EPS and dysphoria
- Conventional dose may be superior during second year for preventing relapse
- Requires approx 4 dosing intervals to achieve steady state
- *Always establish tolerability with oral preparation first*

- **Fluphenazine** conversion:
- 10mg/d ORAL = 12.5 mg IM/SC decanoate Q3 weeks
- Fluphenazine time to steady state approximately 2 months

Second Generation Antipsychotics (SGA)

SGAs share D2 & 5HT antagonism
Cause minimal EPS
Cause minimal elevation of prolaction
Generally, more effective for negative symptoms

Clozapine is the only agent clearly more effective for psychotic symptoms

Risperidone may produce EPS and elevate prolactin at high doses ("partially atypical")

SGAs or Atypical Antipsychotics

Clozapine (Clozaril)

- Atypical properties
- Minimal EPS
- More effective than conventional agents for treatment-resistant patients
- Does not elevate prolactin

Pharmacology: Weak D2 antagonist

- Relatively greater D1 and D4 antagonism
- Strongly anticholinergic
- Alpha adrenergic antagonist
- Histaminergic (H1) antagonist
- Serotonin (5HT2) antagonist
- Blocks ketamine behavioral effects (NMDA receptor)

Clinical Pharmacology

- Usual daily dose 300-600 mg/d (900 mg/d maximum)
- Half life: 16 hrs
- Metabolized by cytochromes 1A2 and 3A4

Efficacy

- Effective in 30% of treatment-resistant patients at six weeks (possibly 50% at 6 months)
- Prevents relapse
- Stabilizes mood; excellent anti-manic agent
- Improves negative symptoms
- Improves polydipsia & hyponatremia
- Reduces hostility, aggression, suicide
- Reduces cigarette smoking and substance abuse?

Adverse Effects

- Sedation 39% (tolerance); Dizziness 19%
- Hypersalivation 31% (may impair swallowing)
- Constipation 14%; Nausea 11%
- Headache 11%
- Tachycardia 25%; Hypotension 9% (tolerance)
- Fever 5% (usually within first 3 wks, lasting few days)
- Seizures 1-6% (related to **absolute dose** and **rate of increase**)
- Weight gain 30%
- Hypertriglyceridemia common
- Agranulocytosis (Granulocytes <500/mm3)
    - Cumulative incidence of 1.6% when taken over 52 weeks
    - Risk factors: Ashkenazi Jews; Finns
    - Preservation of other cell lines (platelets and RBCs)
    - Maximum risk: 4-18 weeks (77% of cases)
    - Recovery usually within 14 days if drug stopped
    - No cross-sensitivity with other drugs, but **best to avoid carbamazepine, captopril, sulfonamides and PTU**
    - Sensitization: **Do not rechallenge!**

Monitoring for agranulocytosis

- Weekly WBC for six months "No blood, no drug"
- Pretreatment WBC should be >3500
- Repeat CBC if:
    - WBC=3000-3500
    - WBC drops by 3000 from previous test
    - 3 consecutive weekly drops
    - If WBC=3000-3500 & granulocytes >1500, proceed with twice-weekly WBCs
    - Hold drug if WBC <3000 or granulocytes <1500
    - Discontinue if WBC <2000 or granulocytes <1000
      Do not rechallenge
- After six months may monitor every 2 wks if no episodes of leukopenia

Starting clozapine

- Start at 12.5 mg/d
- Increase by 25 mg/d as tolerated over first week
- May be added to previous antipsychotic—taper when clozapine dose >100 mg/d
- BID schedule, larger dose at HS if sedation is a problem
- Increase by 50 mg/d every 2-3 days during second week
- Stop at 600 mg/d or when side effects develop

Continued on page 37

ADULT: SUGGESTED SECOND GENERATION ANTIPSYCHOTIC TITRATION SCHEDULE

(Dosing & titration schedule based on Monograph information for psychosis and not to be interpreted as specific to one population. These are general guidelines only. Medically comprised / elderly require lower doses; the chronic, treatment resistant population may require higher doses and/or quicker titrations).

SGA	First Dose	Titration	Range	Schedule / Brief Notes
Clozapine	12.5mg	Day 2: 25mg hs	200 – 900 mg/day	Eventual maintenance dose schedule is: bid (1/3 in am, 2/3 in p.m.)
		Day 3: 25mg bid		Day 3, dose is increased every 3 days
		Day 6: 25mg am & 50mg hs		
		Day 9: 50mg bid		Potential life threatening adverse effects; Monitor weight, lipids, CVstatus
		Day 12: 75mg bid		
		Day 15: 100mg bid		
		Day 18: 125mg bid		May cause agranulocytosis; WBC counts must be performed before initiating therapy, during therapy (initially weekly then biweekly if appropriate) & for 4 weeks after DC therapy
		Day 21: 150mg bid		Should be used cautiously in patients with diabetes; regular periodic monitoring of weight and fasting glucose is suggested.
		Day 24: 100mg am & 200mg hs		Blood levels for CLZ suggested for doses>600 mg/day

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SGA	First Dose	Titration	Range	Schedule / Brief Notes
Olanzapine	5-10 mg	5 mg/week	10 – 20 mg/day	Should be used cautiously in patients with diabetes; regular periodic monitoring of weight and fasting glucose is suggested.
Risperidone	1 mg	1 mg / 3-5 days	2 – 6 mg/day	HS or AM; Monitor weight, lipids; doses >6 mg/day associated with incr. EPS
Quetiapine	25 mg bid	50 mg/day	150 – 800 mg/day	BID; Monitor weight, lipids, blood sugar
Ziprasidone	20 mg bid w/food	Day 2: 20 mg bid [OR 40 mg qod]	80 - 160 mg/day	BID: Give with food; Quicker titrations noted; monitor CV status
		Day 3: 40 mg bid		
		Day 4: 40 mg bid		
		Day 5: 60 mg bid		
		Day 6: 60 mg bid		
		Day 7: 80 mg bid		
		Day 8: 80 mg bid		
Aripiprazole	15 mg qd	15 mg qd	10 - 15 mg /day	QD; Quicker titrations noted but not suggested; monitor weight; long half-life, (75-hours), some reccmd. dose not be increased until after a minimum of 2 weeks therapy. Dosages higher than 10-15mg/day have not been shown to be more effective.

Risperidone (Risperdal)

Clinical Pharmacology
- 5HT2 and D2 antagonist and D4, noradrenergic and histaminergic receptors
- Half life: 24 hours (can be given once daily)
- Metabolized by P450 2D6
- Mean optimal dose:
    - 4-6 mg/d in chronic patients
    - 2-4 mg/d in treatment naive patients
    - 0.5-2 mg/d in elderly/ compromised
- Dose must be titrated up (start at 1-2 mg/d in non-elderly)

Efficacy
- Fewer EPS (EPS adverse effects increase with doses above 6 mg/d)
- More effective for negative symptoms (partly result of less EPS)
- More effective for psychotic symptoms (in some treatment-resistant patients)

Adverse effects
- Dizziness/ hypotension (particularly after first dose)
- Headache
- Nausea/vomiting
- Anxiety
- Rhinitis; Coughing
- Hyperprolactinemia
- Weight gain
- QT delay (usually clinically insignificant)

Olanzapine (Zyprexa)

Clinical Pharmacology
- High 5HT2/D2 ratio
- Histaminergic & alpha adrenergic antagonism
- Metabolized by CYP 1A2 & 3A4
- Half life approx. 20 hrs
- Can start with 10 mg/d at hs in non-compromised patient
- Optimal dose 10-20 mg/d (2.5-5 mg/d in elderly)

Efficacy
- Antipsychotic efficacy comparable to haloperidol
- May be more effective for negative symptoms
- May have substantial antidepressant effect
- Anti-manic efficacy

Adverse effects
- Low incidence of EPS
- Somnolence; dizziness (without hypotension)
- Dry mouth
- Constipation
- Elevation of SGPT (no evidence of hepatotoxicity)
- Hypertriglyceridemia
- Weight gain common

Continued on next page

Quetiapine (Seroquel)

Pharmacology
- High D2/5HT2 ratio (may be effective with <60% D2 blockade)
- Minimal anticholinergic
- Alpha adrenergic antagonist
- Metabolized by CYP 2D6
- Half life approx. 6 hrs

Dosing
- Must titrate due to hypotension
- Start at 25 mg bid (in non-compromised)
- Titrate: 50 mg bid; usual increase by 50mg daily (or, 50 mg bid»100 mg bid »100 mg qAM & 200 mg qhs)
- Optimal dosing: 300-800 mg/d

Efficacy
- Comparable antipsychotic efficacy to CPZ
- More effective for negative symptoms? (Not well established)
- Very low incidence of EPS

Adverse effects
- Postural hypotension
- Somnolence
- Elevation of LFTs (reversible)
- Headache
- Weight gain
- Hypertriglyceridemia common

Ziprasidone (Geodon)

Pharmacology
- High 5HT2/D2 ratio
- 5HT1A AGONIST—possibly effective for depression /anxiety based on receptor profile.
- 5HT1A ANTAGONIST possibly effective for depression based on receptor profile.
- Best when given with food (increases absorption two-fold)
- Half life: 10 hrs

Dosing
- Usual dose: 80-160 mg/d (administered bid)

Efficacy
- Compared to haloperidol
  - Comparable efficacy
  - Less EPS
  - Minimal weight gain
  - IM preparation (not depot)

Adverse effects / Contraindications
- QT prolongation—ziprasidone is contraindicated in patients with a known history of QT prolongation, recent myocardial infarction or with uncompensated heart failure.
- Ziprasidone should not be given with other drugs that may prolong the QT interval pharmacokinetically or pharmacodynamically.
- Postural hypotension
- Somnolence, dizziness
- Anorexia
- Dry mouth
- Anxiety
- Tremor

Continued below

Aripiprazole (Abilfy)

Pharmacology

- High affinity for dopamine D2, D3, 5HT1A & 5HT2A receptors; moderate for alpha 1-adrenergic and histaminic receptors.
    - Alpha1-adrenergic receptors: decreased propensity for orthostatic hypotension?
    - H1 histamine receptors: decreased liability for weight gain and somnolence?
- No appreciable affinity for cholinergic muscarinic receptors:
    - decreased potential for cognitive impairment?
- Partial agonist at dopamine D2 & 5HT1A receptors, antagonist at 5HT2A receptor
- Most activity primarily due to the parent drug aripiprazole, and to a lesser extent, to an active, but major metabolite (dehydro-aripiprazole)
- Half – life:
    - Approx. 75-hours for parent drug (aripiprazole)
    - Approx. 94 hours for active metabolite (dehydro-aripiprazole)
- Steady state attained within 14 days
- Eliminated mainly through hepatic metabolism involving two P450 isozymes:
    - CYP2D6 & CYP3A4
    - Agents that induce CYP3A4 (carbamazepine) could cause an increase in clearance and lower blood levels
    - Agents that inhibit CYP3A4 (ketoconazole) or CYP2D6 (floxetine, paroxetine) can inhibit elimination and cause increased blood levels

Efficacy

- Four pivotal, but separate trials indicating efficacy comparing to placebo, haloperidol, risperidone.

Dosing

- Recommended starting and target dose of 10- 15 mg per day
- Peak plasma concentrations within 3 to 5 hours
- Administer once a day without regard to meals
- Doses higher than 10 or 15 mg per day not demonstrated to be more effective

Adverse effects

- Orthostatic Hypotension
- Headache
- Anxiety
- Insomnia
- Nausea / vomiting
- Use with caution in patients with:
    - Cardiovascular disease (history myocardial infarction or ischemic heart disease, heart failure or conduction abnormalities),
    - Hypotension (or conditions that may predispose patients to dehydration, hypovolemia, antihypertensive medications)
    - History of seizures or with conditions that lower the seizure threshold

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TREATMENT RESISTANCE

1. Reassess diagnosis, consider:
- Substance abuse (alcohol, PCP, stimulants)
- Neurological disorders (partial complex seizures)
- Psychotic depression
- Drug toxicity/ delirium (steroid psychosis, anticholinergic delirium)
- Personality disorder
- PTSD
- Identify psychosocial stressors

2. Adjust antipsychotic dose
- Assess compliance
- Time-limited trial of higher dose, particularly if:
    - No or mild EPS
    - On drugs which induce hepatic enzymes (carbamazepine)
    - Clozapine as high as tolerated (up to 900 mg/d)
- Reduce dose, particularly if moderate or severe EPS or based on results of blood levels if applicable

3. Switch antipsychotics
- If failure on adequate dose of conventional agent, switch to atypicals
- Atypicals differ in patterns of efficacy; therefore, each one is worth consideration
- Clozapine remains most effective agent

4. Adjunctive agents
- Add risperidone, or olanzapine, or ziprasidone, to clozapine
- Add lithium (particularly if affective symptoms, goal blood levels of 0.9-1.2 for 3-5 wk trial)
- ECT (catatonia, affective symptoms), most effective early in course of illness
- Antidepressants (SSRIs for negative symptoms; TCAs may delay response of psychosis)
- Buspirone (15-30 mg/d for agitation, anxiety)

5. Psychosocial Interventions
- Family interventions: education, realistic expectations, coping skills
- Dual diagnosis treatment
- Assertive community treatment (ACT)–
    - outreach
    - compliance monitoring
- Social skills training
- Supported employment
- Cognitive behavioral therapy

6. Question: is relapse due to:
- Medication noncompliance?
- Side effects (EPS, sexual side effects, weight)?
- Lack of insight?
- Complexity of dosing:
    - Consider single dosing where available
    - Depot injections
    - Minimize titrations

Continued below

7. Stressors
- Expressed emotion in family members—critical, affective arousal, enmeshed
- Stressful life events

8. Substance abuse
- Alcohol
- Marijuana
- Stimulants
- PCP & ketamine

Comparisons of SGAs (Atypical Antipsychotics)

Efficacy for Positive Symptoms

- Clozapine is effective in treatment-resistant patients
- Risperidone more effective than haloperidol in some patients
- Olanzapine, quetiapine & ziprasidone comparable to haloperidol
- Olanzapine may not be effective in strictly treatment-resistant patients
- Risperidone & olanzapine "comparable" to clozapine
- Clozapine is the "Gold Standard"

Efficacy for Negative symptoms

- Conventional agents *may* improve some portion of negative symptomatology; *watch out for EPS resulting in "secondary" negative symptoms*
- Clozapine more effective than chlorpromazine
- Risperidone & olanzapine more effective than Haloperidol
- Quetiapine & ziprasidone comparable to haloperidol

Weight gain

Clozapine> olanzapine> quetiapine> risperidone> haloperidol> ziprasidone = aripiprazole> or <molindone

- Olanzapine-associated weight gain,expect:
  - No wt gain 25%
  - >10 kg/yr 20%
- Not dose related; tends to plateau at six months
  - Predictors:
    - Increased appetite
    - Good clinical response
    - Low baseline weight
    - Youth
    - Male gender
- Start nutritional education & counseling early
- Approx. weight loss with behavioral interventions:
  - Olanzapine 4kg
  - Risperidone 2.5kg
  - Haloperidol 2kg

  Wirshing et al., 1999
- Monitor serum glucose

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Metabolic Syndrome

Risk Factor	Measurement
Abdominal Obesity	Waist Circumference
Men	>102 cm (>40 in)
Women	>88 cm (>35 in)
Triglycerides	≥150 mg/dl
HDL Cholesterol	
Men	<40 mg/dl
Women	<50 mg/dl
Blood Pressure	≥130/≥85 mmHg
Fasting Glucose	>110 mg/dl

NCEP 2001

Relative Receptor Interactions & Generalized Effects of SGAs *(may be dose specific)*

	Clozapine	Risperidone	Olanzapine	Quetiapine	Ziprasidone	Aripiprazole
D2 (Extrapyramidal Side Effects)	+	(++) (+++)	++	+	++	?
5HT2 (Antidepressant)	(+) (++)	++++	+++	+	++++	+++
ALPHA 1&2 (Orthostatic Hypotension; Sedation)	+++	(++) (+++)	+++	+++	(+) (++)	(+) (++)
H1 (Sedation; Antihistaminic)	+++	++	(++) (+++)	+++	(+) (++)	(+) (++)
M1 (Antimuscurinic; Anticholinergic)	+++	-	+++	+/-	-	-

Adapted from Matyunas, 2003; Davis 2003; PI's AZ, BMS, Janssen, Lilly, Pfizer

Clinical Signs / Symptoms: SGA Excessive Blood Levels

+++ High ++ Moderate + Mid / Low +/- Possible - Not Noted NR–Not Reported

CNS	Clozapine	Risperidone	Olanzapine	Quetiapine	Ziprasidone	Aripiprazole
Lethargy	++	++	+++	++	++	NR
Somnolence	NR	NR	NR	NR	NR	++
Confusion / Agitation	+	+/-	++	+/-	NR	NR
Coma	++	+/-	+	+/-	NR	NR
*Central Anticholinergic Syndrome	+/-	+/-	+ - ++	-	NR	NR
Seizures	+	-	-	+/-	NR	NR
Myoclonus	+/-	+/-	+	-	NR	NR
Cardiovascular						
Tachycardia	++	+	++	+	++	NR
Hypotension/orthostasis	+	+	+	+	+/-	NR
ECG changes/dysrhythmias	+	++	+	+/-	NR	NR
Respiratory Depression	+/-	-	+/-	+/-	-	NR
Other						
EPS	+/-	+/-	+/-	-	NR	NR
Pupil Contraction	+/-	+/-	++	+/-	NR	NR
Pupil Dilation	+/-	+/-	-	-	NR	NR
Vomiting	NR	NR	NR	NR	NR	++

*Central Anticholinergic Syndrome: altered mental status, disorientation, incoherent speech, delirium, hallucinations, agitation, violent behavior, somnolence, coma, central respiratory failure, seizures (rare)

Matyunas 2003; Watanabe 2001; Bezchlibnyk-Butler & Jeffries, Clinical Handbook of Psychotropic Drugs, 10th ed.; PI's AstraZeneca, BMS, Janssen, Lilly, Pfizer

Mood Stabilizer / Anticonvulsant Overview

Clinical Use	Drug Name							
	Lithium	Divalproex	Carbamazepine	**Lamotrigine	Clonazepam	Olanzapine	Risperidone	Quetiapine
Treatment of acute mania	*+	*+	+	-	+	*+	+	+
Treatment of rapid cycling	-	+	+	?	+	+	?	?
Treatment of mixed mania	-	+	+	-	-	+	?	?
Treatment of recurrent mania	+	?	?	-	-	-	?	?
Prevention of recurrent depression	+	?	?	+	-	-	?	?
Augmentation of other mood stabilizers / anticonvulsants	+	+	+	+	+	+	+	+
Rapid onset	-	+	-	-	+	+	+	+
Treatment with comorbid substance / alcohol abuse	-	+	+	?	-	?	?	?
FDA approved	+	+	-	+	-	+	+	+

Green "+" signifies FDA indication **Yes = +** **No = -** **More data needed = ?**

* FDA Approved for Monotherapy & Use In Combination with Lithium or Valproate to Treat Acute Manic Episodes of Bipolar I Disorder.

** Serious rash associated with lamotrigine; please review current dosing guidelines. Best to avoid coadministration with enzyme inhibitors (e.g., valproic acid) due to increased incidence of serious rash.

Web Links:

American Psychiatric Association
http://www.psych.org/

NASMHPD:
National Assoc. of State Mental Health Program Directors Technical Report on Psychiatric Polypharmacy
http://www.nasmhpd.org/Polypharmacy.pdf

National Library of Medicine
http://www.nlm.nih.gov/

OMAP:
Ohio Medication Algorithm Project.
http://www.psychiatry.uc.edu/cqir/omap.asp

Pharmacy Benefits Management
Strategic Healthcare Group Department of Veterans Affairs http://www.vapbm.org/PBM/treatment.htm

The Psychiatric Society of Virginia
http://www.psva.org/

Psychopharmacology Algorithms Directory
http://www.ipap.org/algorithms.php

TMAP/TIMA:
Texas Medication Algorithm Project
http://www.mhmr.state.tx.us/centraloffice/medicaldirector/TIMA.html

Virginia Association of Community Psychiatrists
http://www.vacp.net

Virginia Department of Medical Assistant Services
http://www.dmas.state.va.us/pharm-home.htm

Generic and Trade Names (Trade Name Capitalized) of Psychotropic Medications (*ACP carries generic where available)		Most common Use / Indication in Psychiatry	ACP Formulary (*)
Abilify	aripiprazole	Antipsychotic	*
Adapin	doxepin	Antidepressant	*
Adderall	amphetamine salts	Psychostimulant / ADD	
Akineton	biperiden	Side-effect control	
alprazolam	Xanax	Antianxiety	*
amantadine	Symmetrel	Side-effect control	*
Ambien	zolpidem	Hypnotic	
amitriptyline	Elavil	Antidepressant	*
Amobarbital	Amytal	Hypnotic	
amphetamine salts	Adderall	Psychostimulant / ADD	
Amytal	amobarbital	Hypnotic	
Anafranil	clomipramine	Antidepressant	*
Antabuse	disulfiram	Rx of alcoholism	*
Aripiprazole	Abilify	Antipsychotic	*
Artane	trihexyphenidyl	Side-effect control	*
Atarax	hydroxyzine HCl	Hypnotic, Antianxiety	
atenolol	Tenormin	Side effect control	
Ativan	Lorazepam	Antianxiety	*
atomoxetine	Strattera	Anti-ADD	
Aventyl	nortriptyline	Antidepressant	*
Benadryl	diphenhydramine	Hypnotic, Side-effect control	*
benztropine	Cogentin	Side-effect control	*
bethanechol	Urecholine	Side-effect control	
biperiden	Akineton	Side effect control	
bupropion	Wellbutrin	Antidepressant	*
Buspar	buspirone	Antianxiety	*
buspirone	Buspar	Antianxiety	*
butabarbital	Butisol	Hypnotic	
Butisol	butabarbital	Hypnotic	
carbamazepine	Tegretol	Mood stabilizer	*
Catapres	clonidine	Anti-ADD, Antianxiety	
Celexa	citalopram	Antidepressant	*
chloral hydrate	Somnote	Hypnotic	
chlordiazepoxide	Librium	Antianxiety	*
chlorpromazine	Thorazine	Antipsychotic	*
Cibalith-S	lithium citrate	Mood stabilizer	*
citalopram	Celexa	Antidepressant, Anti-OCD, Antipanic	
clomipramine	Anafranil	Antidepressant/Anti-OCD	*
clonazepam	Klonopin	Antianxiety	*
clonidine	Catapres	Anti-ADD, Antianxiety	
clorazepate	Tranxene	Antianxiety	*
clozapine	Clozaril	Antipsychotic	*

Generic and Trade Names (Trade Name Capitalized) of Psychotropic Medications (*ACP carries generic where available)		Most common Use / Indication in Psychiatry	ACP Formulary (*)
Cogentin	benztropine	Side-effect control	*
Concerta	methylphenidate Ext. Release	Psychostimulant/ADD, Potentiates antidepressants	
Cylert	Pemoline	Psychostimulant/ADD, Potentiates antidepressants	
cyproheptadine	Periactin	Side-effect control	
Cytomel	liothyronine	Potentiates antidepressants	
Dalmane	flurazepam	Hypnotic	
Depakene	valproic acid/ valproate	Mood stabilizer	*
Depakote	divalproex, valproate	Mood Stabilizer	*
deprenyl	see selegiline	Antidepressant	
desipramine	Norpramin	Antidepressant	*
Desoxyn	methamphet-amine	Psychostimulant/ADD	*
dexamethasone	Decadron	Diagnostic test for depression.	
Dexedrine	dextro-amphetamine	Psychostimulant / ADD, Potentiates Antidepressants	
dextro-amphetamine	Dexedrine	Psychostimulant / ADD, Potentiates Antidepressants	
diazepam	Valium	Antianxiety	*
diphenhydramine	Benadryl	Hypnotic, Side-effect control	*
disulfiram	Antabuse	Rx of alcoholism	*
divalproex	Depakote	Mood stabilizer	*
Doral	quazepam	Hypnotic	
doxepin	Sinequan, Adapin	Antidepressant, Antipanic	*
Effexor	venlafaxine	Antidepressant, Anti-OCD Antipanic	*
Elavil	amitriptyline	Antidepressant, Antipanic	*
Equinil	meprobamate	Antianxiety	
Eskalith	lithium carbonate	Mood stabilizer	*
estazolam	Prosom	Hypnotic	
felbamate	Felbatol	Anticonvulsant, Mood stabilizer	
Felbatol	felbamate	Mood stabilizer	
fluoxetine	Prozac	Antidepressant, Anti-OCD, Anti-panic	*
fluphenazine	Prolixin	Antipsychotic	*
flurazepam	Dalmane	Hypnotic	
fluvoxamine	Luvox	Antidepressant, Anti-OCD, Antipanic	*

Generic and Trade Names (Trade Name Capitalized) of Psychotropic Medications (*ACP carries generic where available)		Most common Use / Indication in Psychiatry	ACP Formulary (*)
gabapentin	Neurontin	Mood stabilizer	*
Gabitril	tiagabine	Anticonvulsant, Mood stabilizer	
Geodon	ziprasidone	Antipsychotic, Mood stabilizer	*
Halcion	triazolam	Hypnotic	
Haldol	haloperidol	Antipsychotic	*
haloperidol	Haldol	Antipsychotic	*
hydroxyzine pamoate	Vistaril	Hypnotic, Antianxiety	*
imipramine	Tofranil	Antidepressant, Antipanic	*
Inderal	propranolol	Side-effect control, Anger control	*
isocarboxazid	Marplan	Antidepressant	
Kemadrin	procyclidine	Side-effect control	
Keppra	levetiracetam	Anticonvulsant, Mood stabilizer	
Klonopin	clonazepam	Antianxiety, Mood stabilizer	*
Lamictal	lamotrigine	Anticonvulsant, Mood stabilizer	*
lamotrigine	Lamictal	Anticonvulsant, Mood stabilizer	*
levetiracetam	Keppra	Anticonvulsant, Mood stabilizer	
levothyroxine	Synthroid	Potentiates antidepressants, Mood stabilizer	
Librium	chlordiazepoxide	Antianxiety	*
liothyronine	Cytomel	Potentiates antidepressants, Mood stabilizer	
lithium carbonate	Eskalith, Lithotab	Mood stabilizer, Potentiates antidepressants	*
lithium citrate	Cibalith-S	Mood stabilizer, Potentiates antidepressants	*
Lithonate	lithium carbonate	Mood stabilizer, Potentiates antidepressants	*
Lithotabs	lithium carbonate	Mood stabilizer, Potentiates antidepressants	*
lorazepam	Ativan	Antianxiety	
loxapine	Loxitane	Antipsychotic	*

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Loxitane	loxapine	Antipsychotic	*
Ludiomil	maprotiline	Antidepressant	*
Luvox	fluvoxamine	Antidepressant, Anti-OCD, Antipanic	*
maprotiline	Ludiomil	Antidepressant	*
Marplan	isocarboxazid	Antidepressant,Antipanic	
meprobamate	Miltown,Equinil	Antianxiety	
mesoridazine	Serentil	Antipsychotic	*
methamphetamine	Desoxyn	Psychostimulant/ADD	
methylphenidate	Ritalin	Psychostimulant/ADD	
methylphenidate Ext. Release	Concerta	Psychostimulant/ADD	
Miltown	meprobamate	Antianxiety	
Mirapex	pramipexol	Potentiates antidepressants	
mirtazepine	Remeron	Antidepressant, Antipanic	
Moban	molindone	Antipsychotic	*
modafanil	Provigil	Narcolepsy, Potentiates antidepressants	
molindone	Moban	Antipsychotic	*
naltrexone	ReVia	Rx of alcoholism, Potentiates antidepressants	
Nardil	phenelzine	Antidepressant, Antipanic	*
nefazodone	Serzone	Antidepressant	*
Nembutal	Pentobarbital	Hypnotic	
Neurontin	gabapentin	Mood stabilizer	*
Norpramin	desipramine	Antidepressant	*
nortriptyline	Aventyl, Pamelor	Antidepressant,Antipanic	
olanzapine	Zyprexa	Antipsychotic	*
Orap	pimozide	Antipsychotic	
oxazepam	Serax	Antianxiety	*
oxcarbazepine	Trileptal	Anticonvulsant, Mood stabilizer	
Pamelor	nortriptyline	Antidepressant,Antipanic	*
Parnate	tranylcypromine	Antidepressant,Antipanic	*
paroxetine	Paxil	Antidepressant, Anti-OCD,Antipanic	*
Paxil	paroxetine	Antidepressant, Anti-OCD,Antipanic	*
pemoline	Cylert	Psychostimulant/ADD, Potentiates antidepressants	
Periactin	cyproheptadine	Side-effect control	

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perphenazine	Trilafon	Antipsychotic	*
phenelzine	Nardil	Antidepressant,Antipanic	*
pimozide	Orap	Antipsychotic	
pindolol	Visken	Potentiates antidepressants	
Placidyl	ethchlorvynol	Hypnotic	
pramipexole	Mirapex	Potentiates antidepressants	
prazepam	Centrax	Antianxiety	
procyclidine	Kemadrin	Side-effect control	*
Prolixin	fluphenazine	Antipsychotic	*
propranolol	Inderal	Side-effect control	*
Prosom	estazolam	Hypnotic	
protriptyline	Vivactil	Antidepressant,Antipanic	*
Provigil	modafinil	Psychostimulant/ADD, potentiates	
Prozac	fluoxetine	Antidepressant, Anti-OCD, Antipanic	*
Quazepam	Doral	Hypnotic	
quetiapine	Seroquel	Antipsychotic	*
Remeron	mirtazepine	Antidepressant,Antipanic	*
ReVia	naltrexone	Rx of alcoholism, Potentiates antidepressants	
Risperdal	risperidone	Antipsychotic	*
Risperdal Consta	risperidone long acting injection	Antipsychotic	*
risperidone	Risperdal	Antipsychotic	*
risperidone long acting injection	Risperdal Consta	Antipsychotic	*
Ritalin	methylphenidate	Psychostimulant/ADD, Potentiates	
secobarbital	Seconal	Hypnotic	
Seconal	secobarbital	Hypnotic	
selegiline	Eldepryl	Antidepressant	
Serax	oxazepam	Antianxiety	*
Seroquel	quetiapine	Antipsychotic	*
sertraline	Zoloft	Antidepressant, Anti-OCD, Antipanic	*
Serzone	nefazodone	Antidepressant	*
Somnote	chloral hydrate	Hypnotic	
Sonata	zaleplon	Hypnotic	
Stelazine	trifluoperazine	Antipsychotic	*
Strattera	atomoxetine	Anti-ADD	
Surmontil	trimipramine	Antidepressant, Antipanic	

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Symmetrel	amantadine	Side-effect control	*
Synthroid	levothyroxine	Potentiates antidepressants, Mood stabilizer	
Tegretol	carbamazepine	Mood stabilizer	*
temazepam	Restoril	Hypnotic	*
tenormin	atenolol	Side-effect control	
thioridazine	Mellaril	Antipsychotic	*
Thorazine	chlorpromazine	Antipsychotic	*
tiagabine	Gabitril	Anticonvulsant, Mood stabilizer	
Tofranil	imipramine	Antidepressant, Antipanic	*
Topamax	topiramate	Anticonvulsant, Mood stabilizer	*
topiramate	Topamax	Anticonvulsant, Mood stabilizer	*
Tranxene	clorazepate	Antianxiety	*
tranylcypromine	Parnate	Antidepressant, Antipanic	*
trazodone	Desyrel	Antidepressant,Hypnotic	*
triazolam	Halcion	Hypnotic	
trihexyphenidyl	Artane	Side-effect control	*
Trilafon	perphenazine	Antipsychotic	*
Trileptal	oxcarbazepine	Anticonvulsant, Mood stabilizer	
trimipramine	Surmontil	Antidepressant,Antipanic	
Urecholine	bethanechol	Side-effect control	
Valium	diazepam	Antianxiety	*
Valproate	Depakote/ Depakene	Mood stabilizer	
valproic acid	Depakene	Mood stabilizer	*
venlafaxine	Effexor Antidepressant, hydroxyzine	Anti-OCD, Antipanic	*
Vistaril	pamoate	Hypnotic, Antianxiety	*
Wellbutrin	bupropion	Antidepressant	*
Xanax	alprazolam	Antianxiety	*
zaleplon	Sonata	Hypnotic	
ziprasidone	Geodon	Antipsychotic, Mood stabilizer	*
Zoloft	sertraline	Antidepressant, Anti-OCD, Antipanic	*
zolpidem	Ambien	Hypnotic	
Zyprexa	olanzapine	Antipsychotic	*

We have made every effort to ensure the accuracy of the data listed and that they are within current practice recommendations at the time of publication. However, due to changing regulations and drug information, the readers are strongly urged to check the package insert for drug data as well as updated versions of the State AfterCare Formulary for current prices.

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